

April 27, 2022

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Dear Editor:

Enclosed please find our manuscript “Evaluating the evidence of widespread maintenance of functional composition in vertebrate communities” submitted as a Research Report to *Proceedings of the Natural Academy of Sciences*.

Our paper looks for the first time at temporal patterns of functional diversity across biomes, climates, realms, and taxa, finding evidence of maintenance of functional structure in all systems. We pair existing databases of community time series with functional trait data to reconstruct thousands of time series of functional change across the globe, many in areas experiencing intense anthropogenic impacts. Our findings stand in stark contrast to prevailing hypotheses of functional loss in response to both acute pressures and background environmental change. These results are of broad relevance across the natural sciences, providing fundamental insight into the nature of biodiversity change, with implications for ecosystem function, processes, and stability.

All code used to process the data, perform the analyses, and create the figures is archived at <https://doi.org/10.5281/zenodo.5514334>. All data are publicly available, and interim data products created over the course of data processing and analysis can be found at <https://doi.org/10.5281/zenodo.6499442>. We follow best practices for crediting original data providers by citing the original studies for all data sources and therefore exceed citation limit guidelines.

Thank you for your consideration.

Best,

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